

Mary Anne Clare Cummings, C.V.

Professional Preparation:

University of Michigan, Physics, B.S. 1983

University of Michigan, Physics, Ph.D. 1991 (R. Gustafson and L. Jones, advisors)

Work Experience:

Detector development, data acquisition, detector commissioning and calibration, high energy physics experiment, astrophysics experiment, project management, muon cooling channel component design and tests.

Appointments:

Physicist, Muons, Inc., 2005-present;

Graduate Adjunct Professor, Northern Illinois University (NIU), 2005-present;

Research Professor, Dept. of Physics, Northern Illinois University (NIU), 1999 -2005;

Research Scientist, Dept. of Physics, Michigan State University, 1999;

Adjunct Professor, Dept. of Physics, NIU, 1997-1998;

Adjunct Professor, Dept. of Physics, Triton College, 1997;

Physicist, Dept. of Physics, University of Hawaii, 1994-1997;

Research Associate, Dept. of Physics, University of Hawaii, 1991-1994;

Research Assistant,, University of Michigan, 1984-1990.

Research and academic activities:

Leader, MuCool LH2 Absorber Group, 2001-2007;

Coordinator, Minerva/NIU Scintillator Extrusion Group, 2004-2005.

Leader, D0 top-to-all-jets group, 1998-2000;

Spokesperson, Radiocoherence proposal at Fermilab, 1998-1999;

Head, D0 Gluon-quark jet discrimination study, 1997;

Leader, D0 Muon Detector Calibration Group, 1992-1996.

Recent conference talks:

"Accelerator Backgrounds in a Muon Collider", TIPP 2011, Chicago, IL, June, 2011.

"MANX, a 6-D Muon Cooling Experiment", DPF 2009, Detroit, MI, July 2009.

"New Technologies in Hydrogen Absorbers for Cooling Channels", PAC2005, May 2005.

"The Mucool/MICE LH2 Absorber Program", DPF 2004, September 2004.

"The Mucool Project", Nufact '04, Osaka, July 2004.

"Muon Colliders", WIN '03, Lake Geneva, Oct. 2003.

"Neutrino Factories", WIN '03, Lake Geneva, Oct, 2003.

Selected Publications:

1. "Accelerator Backgrounds in a Muon Collider", *TIPP 2011 Conference Proceedings*, Chicago, IL, June, 2011.
2. Integrated Low Beta Region Muon Collider Detector Design, *IPAC 2010 Proceedings*, 2010.
3. Intense Stopping Muon Beams, *EPAC '08 Proceedings*, 2008.
4. Current LH2 Absorber R&D in MuCool, *Journal of Physics G*, 2003.
5. Recent progress in neutrino factory and muon collider research within the Muon Collaboration, M. Alsharoa *et al.*, *Physical Review Special Topics - Accelerators and Beams*, 6(081001), 1-52 (2003).
6. Energy Absorber R & D, *Proceedings of NuFact'00*, 2001.
7. Measurement of the top quark pair production in p-pbar collisions using multijet final states, B. Abbott, *et al.*, (The D0 Collaboration), *PRD* 60, 01200 (1999).
8. Beauty at D0: Upgrade and Recent Results, M.A.C. Cummings, *NIM*, 6862 (1996).
9. Muon Identification and Triggering at D0, M. Cummings, D. Hedin, and K. Johns, *Proceedings of the Workshop on B-physics at Hadron Accelerators*, Snowmass, p. 537, (1993).
10. Inclusive muon and b-quark Production Cross Sections in Collisions at $\sqrt{s} = 1.8$ TeV, S. Abachi, *et al.*, (The D0 Collaboration), *PRL* 74, 3548 (1995).
11. Development of Water Cerenkov Detectors at Fermilab for the Pierre Auger Project", P.O. Mazur, M.A. Cummings, *Proceedings of the 25th International Cosmic Ray Conference*, Durban, South Africa, July 1997.
12. D0 All-Hadronic Top Decay and Top Cross Section Summary, M.A.C. Cummings, *ICHEP98 Proceedings*, Vancouver (1998).
13. Measurement of the top quark pair production in p-pbar collisions using the all-jets decay channel, B. Abbott, *et al.*, (The D0 Collaboration), *Phys. Rev. Lett.*, 83, 1908 (1999).

Collaborators in past 10 years:

Mu2e Collaboration at Fermilab,
Auger Collaboration at Fermilab,
RICE (radiocoherence experiment at the South Pole, now under ICECUBE),
MUCOOL collaboration at Fermilab,
MICE collaboration, NIU and Muons, Inc.
Minerva collaboration, NIU and Fermilab.
DZero Collaboration.

Professional associations:

Organizer, Low Emittance Muon Collider Workshops, 2007, 2008, 2009.
Users Executive Committee, 1996-1998.

Ph. D. students supervised:

John Balderston, U of Hawaii, Brian Connolly, Florida State U.

Masters students:

Laura Bandura (Masters Degree, 2003), Donna Kubik, NIU.